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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/501,950 | 07/21/2004 | Kyosti Valta | 43289-205707 | 3429 |

26694 7590 03/09/2006
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WASHINGTON, DC 20045-9998

EXAMINER

WHITE, EVERETT NMN

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1623

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/501,950

Applicant(s)

VALTA ET AL.

Examiner

Everett White

Art Unit

1623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>July 21, 2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On page 3, line 17, the product of the chemical equation represented as formula "Cell-O—C--NH₂" is not correct because the carbon atom "C" only set forth two bonds. The "C" should have an attachment of 4 bonds.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 4, line 3, the phrase "the cellulose fiber" lacks clear antecedent basis since fiber was not previously disclosed in Claim 1 from which Claim 4 is dependent from.

Regarding Claim 11 at line 3, the term "possibly" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1, 2, 14 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Rahman et al (EP 402606).

Applicants claim a method for manufacturing cellulose carbamate, wherein an auxiliary agent and urea are absorbed into cellulose, and a reaction between cellulose and urea is carried out in a mixture containing cellulose, a liquid, the auxiliary agent, and urea, wherein the liquid content in the mixture is less than 40%. Additional limitations in the dependent claim include the method wherein the auxiliary agent is an alkalizing agent; the method wherein the cellulose is wood cellulose or dissolving pulp or cotton linters; the method wherein the alkalizing agent is sodium hydroxide.

The Rahman et al publication discloses synthesis of a cellulose aminomethanate (which is identical to cellulose carbamate) in Example IV, wherein initially 1807 grams of sulfate pulp is steep in 21 kilograms of steep liquor containing 3.0% sodium hydroxide and 20.0% urea. The sodium hydroxide in this example anticipates the alkalizing agent disclosed in instant Claims 2 and 20. This description suggests a reaction medium containing about 40% liquids, which anticipates the amount of liquid disclosed in instant Claim 1.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 3-13, 15-19 and 21-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rahman et al (EP 402606) in view of Hill et al (US Patent No. 2,134,825).

Applicants claim a method for manufacturing cellulose carbamate, wherein an auxiliary agent and urea are absorbed into cellulose, and a reaction between cellulose and urea is carried out in a mixture containing cellulose, a liquid, the auxiliary agent, and urea, wherein the liquid content in the mixture is less than 40%. Additional limitations in the dependent claims include the auxiliary agent being hydrogen peroxide; subjecting the mixture to mechanical working; the method wherein the liquid is more than 50% water; the method having a specific processing time; and the method wherein the cellulose used is of a specific size.

The Rahman et al publication discloses synthesis of a cellulose aminomethanate (which is identical to cellulose carbamate) in Example IV, wherein initially 1807 grams of sulfate pulp is steep in 21 kilograms of steep liquor containing 3.0% sodium hydroxide and 20.0% urea. The sodium hydroxide in this example embraces the alkalizing agent disclosed in instant the instant claims. This description suggests a reaction medium containing about 40% liquids, which embraces the amount of liquid disclosed in the instant claims.

The method of manufacturing cellulose carbamate in the instant claims differs from the cellulose carbamate preparation of the Rahman et al publication by claiming that the auxiliary agent thereof may be selected as hydrogen peroxide.

The Hill et al patent shows that the use of hydrogen peroxide to prepare cellulose carbamate (referred to as urea-cellulose in the Hill et al patent) is well known in the art. See page 2, 1st column, line 72 to 2nd column, line 13, wherein hydrogen peroxide may be used to control the viscosity of the solution comprising the urea-cellulose (or cellulose carbamate). See page 2, 2nd column, lines 9-12 wherein the hydrogen peroxide can be added to the steeping bath thereof and the caustic soda may or may not be omitted therefrom, as desired, when hydrogen peroxide is present, which suggests the substitution of hydrogen peroxide with caustic soda (which is sodium hydroxide). See page 2, 2nd column, 3rd paragraph of the Hill et al patent, wherein a general procedure for preparing cellulose carbamate is described which involves passing a sheeted cellulose at a suitable rate through a steeping bath, then through squeeze rolls which press out the excess steeping liquor; the impregnated sheets may then be passed through a hot air-blast oven which continuously dries and bakes the sheets at any desired temperature and for any desired period of time, thus causing the urea to react with the cellulose. This description of the Hill et al patent embraces the mechanical working described in instant Claims 4-9, 21, 22 and 26-30. See page 3, 1st column, lines 39-41 of the Hill et al patent, wherein water is suggested as the liquid of choice of the steeping bath, wherein certain organic solvents may be substituted therefor. This description embraces the subject matter of instant Claims 10 and 23-25, which describes the amount of water contained in the liquid. The amount of liquid disclosed in the mixture set forth in instant Claims 17-19 is noted, but does not indicate reason for allowance of the instant claims since proportions of ingredients, to impart patentability to an otherwise obvious chemical composition, must produce more than a mere difference in degree in the properties of the composition. *In re Fields* (CCPA 1962) 304 F2d 691, 134 USPQ 242. The proportions must be critical, i.e., they must produce a difference in kind rather than degree. *In re Touvay et al.* (CCPA 1958) 264 F2d 901, 121 USPQ 265; *In re Selmi et al.* (CCPA 1946) 156 F2d 96, 70 USPQ 197; *In re Waite* (CCPA 1948) 168 F2d 104, 77 USPQ 586. No patentable difference in the cellulose carbamate of the instant claims and the prior art is noted.

A person of ordinary skill in this art would be motivated to combine the teachings of the Rahman publication with the teachings of the Hill et al patent since both references disclose cellulose carbamate compounds and preparations thereof.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the sodium hydroxide disclosed in the steeping bath for preparing cellulose carbamate of the Rahman et al publication with hydrogen peroxide in view of the recognition in the art, as evidenced by the Hill et al patent, that use of hydrogen peroxide is an effective agent for controlling the viscosity of cellulose carbamate.

Summary

8. All the pending claims are rejected.

Examiner's Telephone Number, Fax Number, and Other Information

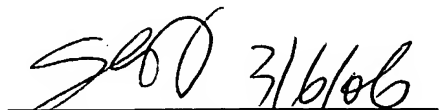
9. For 24 hour access to patent application information 7 days per week, or for filing applications, please visit our website at www.uspto.gov and click on the button "Patent Electronic Business Center" for more information.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Everett White whose telephone number is (571) 272-0660. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia A. Jiang, can be reached on (571) 272-0627. The fax phone number for this Group is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.


E. White


Shaojia A. Jiang
Supervisory Primary Examiner
Technology Center 1600